

## **ABSTRACT**

The present invention is a system for providing GPS users with a high level of confidence in the integrity and accuracy of received GPS signals. A waveform monitor allows the GPS satellite to verify the integrity of its

5 transmitted signal by detecting its own transmitted waveform. The waveform monitor includes a receiver mounted in the GPS satellite. The receiver receives the GPS signal transmitted by the GPS satellite. The waveform monitor then compares the received GPS signal with a copy of what the GPS satellite intended to send which is stored in memory. The waveform monitor can compare the

10 received digital navigation message with the copy stored in memory, and/or compare the received RF waveform with waveform data stored in memory. The waveform monitor thereby determines whether the transmitted signal has integrity. The GPS satellite then sends an integrity message to GPS users to inform the GPS users of the integrity of received GPS signals from that satellite.